CLAIM

1. A process for olefin metathesis reaction comprising the following steps:

a) providing a catalyst comprising at least one transition metal selected from Group VIA and Group VIIA metals and a support containing a mixture of 0.1 to 60 percent by weight of zeolite, based on total weight of the support, with at least one other inorganic or organic material, wherein the at least one other inorganic or organic material is selected from silicon dioxide, titanium dioxide, zirconium dioxide and activated carbon, preferably silicon dioxide;

b) optionally activating the catalyst of step a); and

c) contacting the catalyst of step a) or b) with a feed stream of olefin;

wherein the zeolite is Y-zeolite, and

the feed stream comprises ethylene and a second olefin that is 2-butene or 2-pentene.

2. The process according to claim 1 wherein the at least one transition metal is selected from rhenium, molybdenum and tungsten, preferably tungsten.

3. The process according to claim 1 or 2 wherein the catalyst comprises the at least one transition metal in an amount of 1 to 12 percent by weight, calculated as elemental metal, of the total catalyst.

4. The process according to any one of the preceding claims wherein the support comprises the zeolite in an amount of 0.1 to 30 percent by weight of the total support, preferably 0.5 to 20 percent by weight, more preferably 1 to 10 percent by weight, and most preferably 4 to 8 percent by weight.

5. The process according to any one of the preceding claims wherein the zeolite has silica to alumina ratio in the range of 2 to 500, preferably 10 to 200, more preferably 12 to 20.

6. The process according to any one of the preceding claims wherein the catalyst comprises a lanthanide metal.

7. The process according to any of the preceding claims wherein activating the catalyst comprises treating the catalyst at a temperature in the range of 200°C to 700°C.

8. The process according to any of the preceding claims wherein contacting the catalyst and the feed stream is carried out at a temperature in the range of 200°C to 600°C.

9. The process according to any of the preceding claims wherein the first olefin and the second olefin are selected from ethylene and 2-butene or ethylene and 2-pentene, preferably ethylene and 2-butene.

10. The process according to any one of the preceding claims wherein the process further comprises, after step c), a regeneration step.